



SOT-23 Plastic-Encapsulate Mosfets

IRLML0100TRPBF-ALJ N-Channel Power Mosfet

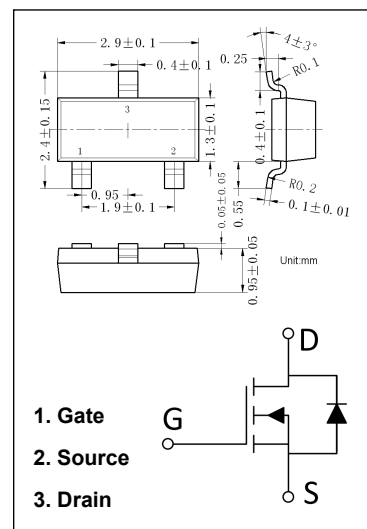
Features

- Industry-standard pinout result in multi-vendor compatibility
- Compatible with existing Surface Mount Techniques
- RoHS compliant containing no lead, no bromide and no halogen

Applications

- Load/ System Switch

Marking:0102



Absolute Maximum Ratings

Symbol	Parameter	Max	Unit
V_{DS}	Drain- Source Voltage	100	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	1.6	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	1.3	
I_{DM}	Pulsed Drain Current	7.0	
$P_D @ T_A = 25^\circ\text{C}$	Maximum Power Dissipation	1.3	W
$P_D @ T_A = 70^\circ\text{C}$	Maximum Power Dissipation	0.8	
	Linear Derating Factor	0.01	W/ $^\circ\text{C}$
V_{GS}	Gate-to-Source Voltage	± 16	V
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient($t < 10\text{s}$)	99	

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	100			V
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown voltage temp. Coefficient	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$		0.1		V/ $^\circ\text{C}$
$R_{DS(on)}$	Static drain-to-source on-resistance	$V_{GS} = 4.5\text{V}, I_D = 1.3\text{A}^{(2)}$		190	235	m Ω
		$V_{GS} = 10\text{V}, I_D = 1.6\text{A}^{(2)}$		178	220	m Ω
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 25\mu\text{A}$	1		2.5	V
I_{DSS}	Drain-to-Source leakage current	$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$			20	μA
		$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}, T_J = 125^\circ\text{C}$			250	μA
I_{GSS}	Gate-to-Source forward leakage	$V_{GS} = \pm 8\text{V}$			± 100	nA
Q_g	Total Gate Charge	$I_D = 1.6\text{A}, V_{DS} = 50\text{V}$ $V_{GS} = 4.5\text{V}^{(2)}$		2.5		nC
Q_{gs}	Gate-to-Source Charge			0.5		
Q_{gd}	Gate-to-Drain ("Miller") Charge			1.2		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 50\text{V}^{(2)}$		2.2		ns
t_r	Rise Time	$V_{GS} = 4.5\text{V}$		2.1		
$t_{d(off)}$	Turn-Off Delay Time	$R_G = 6.8\Omega$		9.0		
t_f	Fall Time	$I_D = 1.0\text{A}$		3.6		

g_{fs}	Forward Trans conductance	$V_{DS} = 50V, I_D = 1.6A$	5.7			S
R_G	Internal Gate Resistance			1.3		Ω
C_{iss}	Input Capacitance	$V_{GS} = 0V$		290		pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		27		
C_{rss}	Reverse Transfer Capacitance	$f = 1.0MHz$		13		

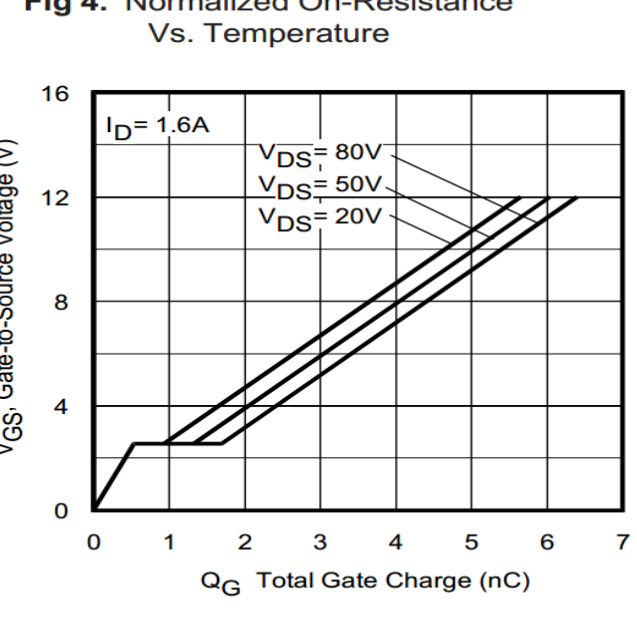
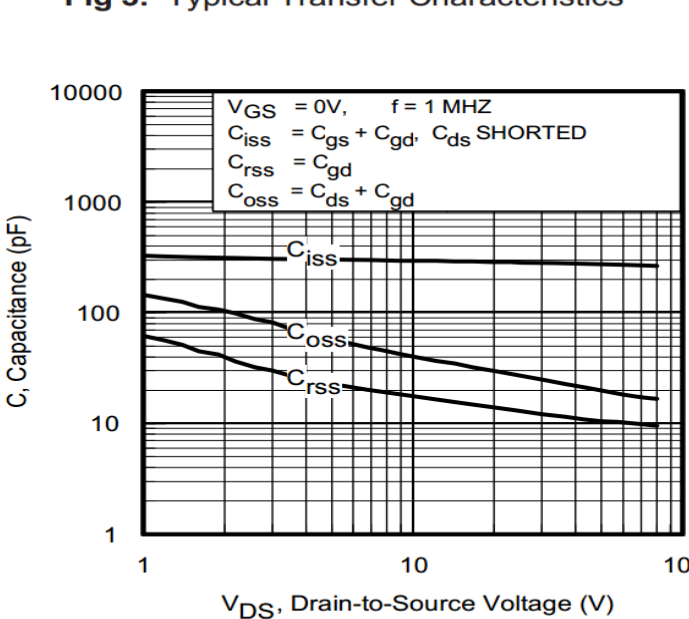
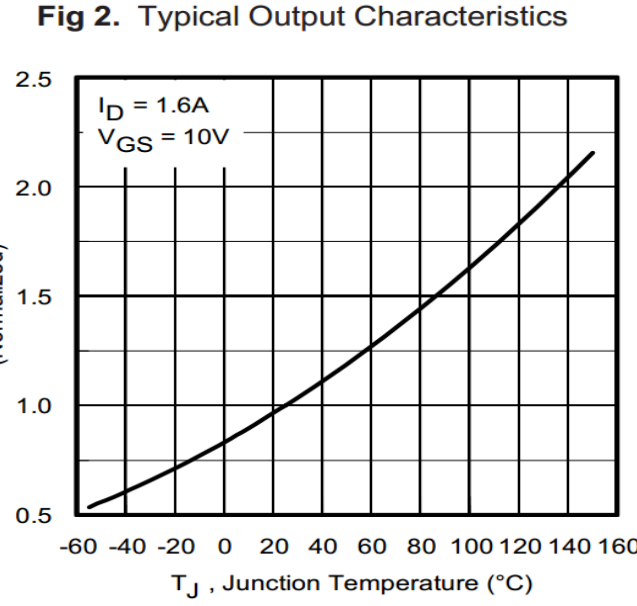
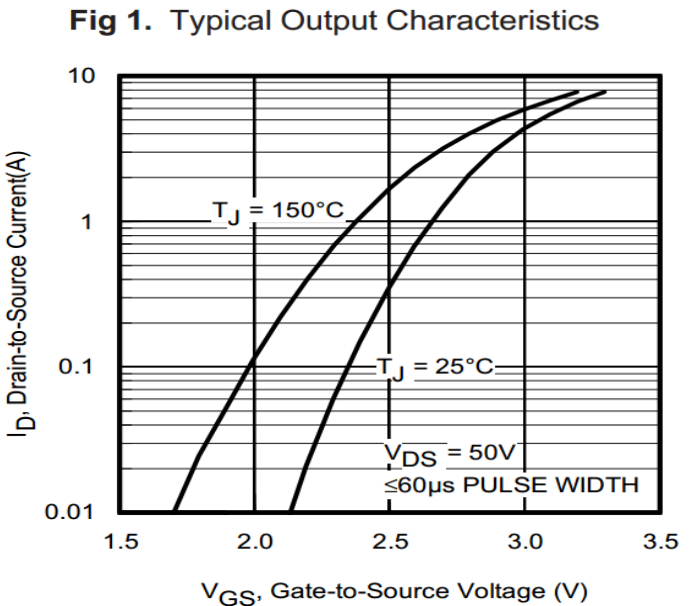
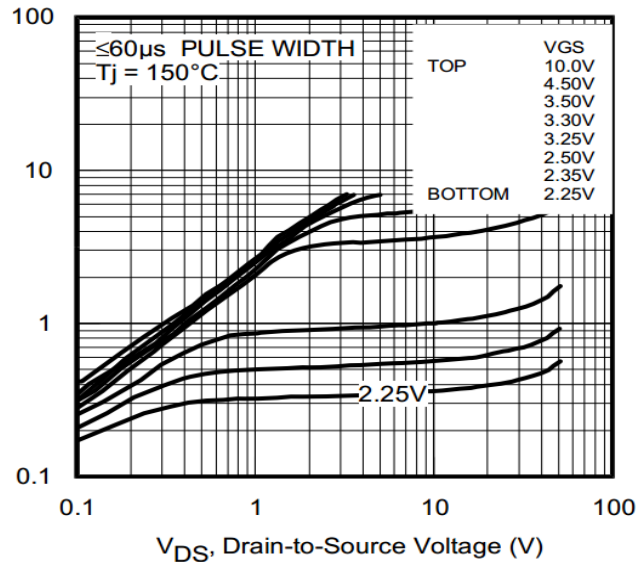
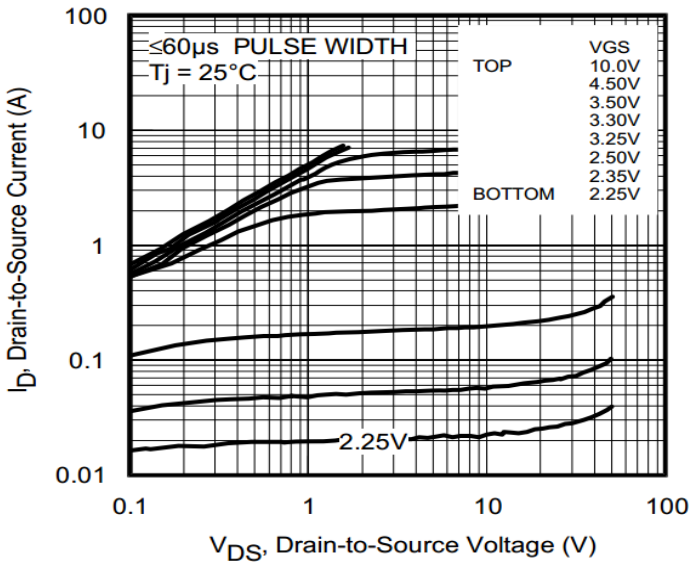
Source-Drain Ratings and Characteristics

Symbol	Parameter	Test Conditions		Min	Typ	Max	Unit
I _S	Continuous Source Current (Body Diode)	MOSFET symbol showing the integral reverse P-N junction diode				1.1	A
I _{SM}	Pulsed Source Current (Body Diode) ¹⁾					7.0	
V _{SD}	Diode Forward Voltage	T _J = 25°C, I _S = 1.1A, V _{GS} = 0V ²⁾				1.3	V
t _{rr}	Reverse Recovery Time	T _J = 25°C, I _F = 1.1A, di/dt = 100A/μs ²⁾			20	30	ns
Q _{rr}	Reverse Recovery Charge				13	20	nC

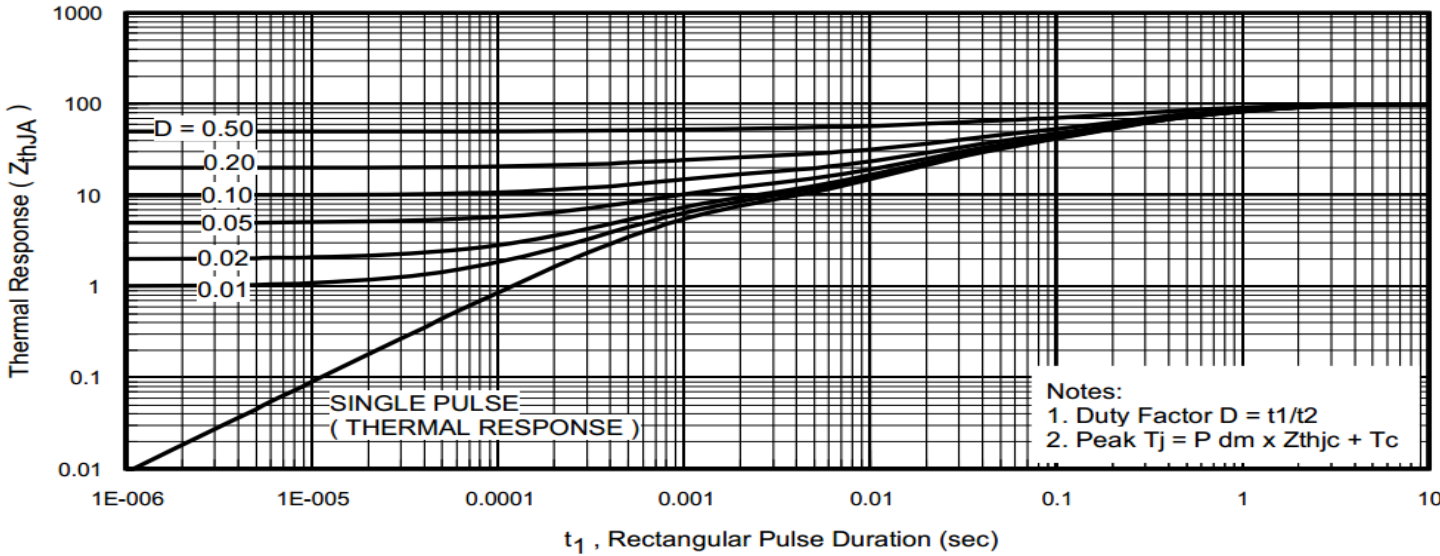
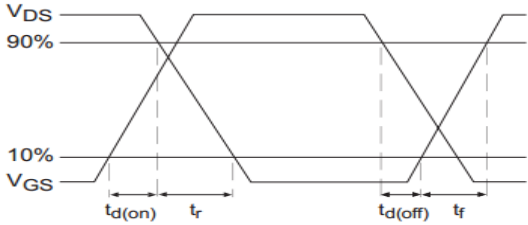
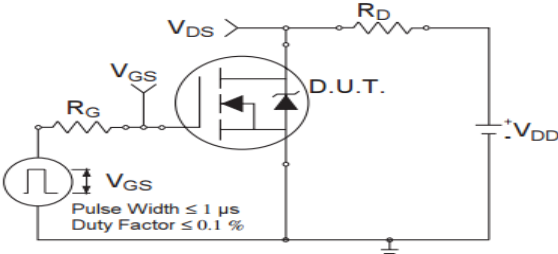
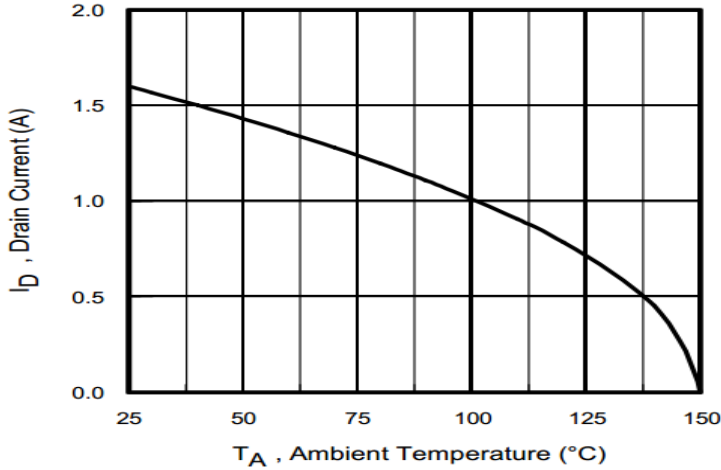
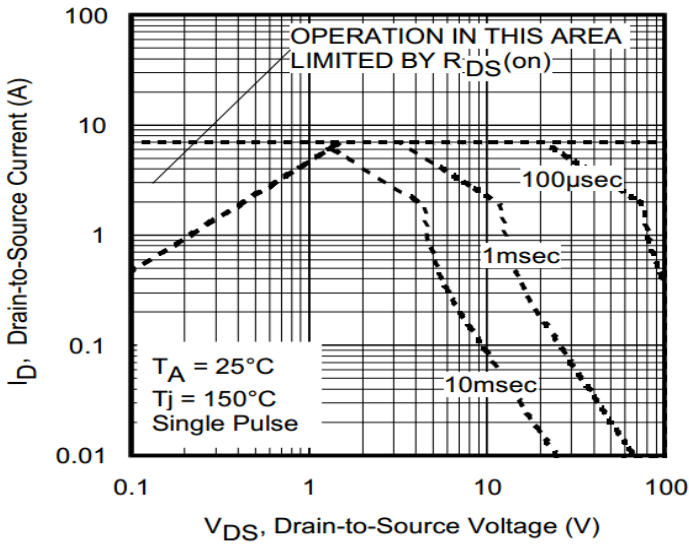
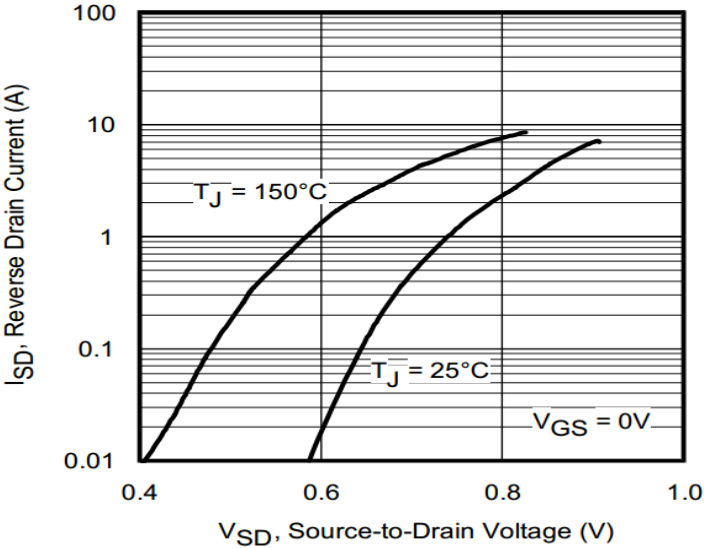
Notes:

1. Repetitive rating; pulse width limited by max. Junction temperature.
2. Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.

Typical Characteristic



Typical Characteristics (Cont.)



Typical Characteristics (Cont.)

